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BY

R. T. WILLIAMSON, M.D., F.R.C.P., F.R.G.S.

Assistant Physician, Royal Infirmary, Manchester.

Sherratt and Hughes
33 Soho Square, London, W.
34 Cross Street, Manchester
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THE GEOGRAPHICAL DISTRIBUTION OF DIABETES MELLITUS.

By R. T. Williamson, M.D., F.R.C.P., F.R.G.S.,
Assistant Physician, Royal Infirmary, Manchester.

Statistics show that the death-rate from diabetes mellitus has increased markedly in England during the last thirty years. In 1866 it was 32 per million living; in 1886, 59; in 1906, 97; in 1907 it was 96.

The total number of deaths yearly from diabetes has increased from 1,773 in 1888 to 3,360 in 1907. The increase in the mortality has been greatest amongst women. In 1887 the death-rate from the disease in males was 75 per million living; in 1907 it was 103 per million; amongst females it was 51 in 1887, 90 in 1907. In many other countries there has been a similar increase in the death-rate from diabetes.

It is not easy to decide to what extent this apparent increase of the death-rate is really due to greater accuracy in the diagnosis of diabetes in recent years. But it is improbable that this is the only cause of such a marked increase, and it will not account for the great difference between the mortality in England and in many other countries. Moreover, in certain countries and towns there is very little or no increase in the diabetic mortality. We may fairly conclude that either diabetes is becoming much more prevalent in England and in many other countries, or that formerly very many cases were not diagnosed, or that the recent increased death-rate is due to both causes. Diabetes must now be regarded, therefore, as a much more formidable disease than thirty years ago. The facts given in this article, respecting the geographical distribution of diabetes mellitus, have been collected with the hope that they might possibly be of service, in the future, in throwing some light on the causation of the disease. Saundby, Hirsch and Clemow have published previously very interesting work on this subject; but since these accounts were published the statistics in many towns and countries have changed markedly.

The death-rate from diabetes in England and Wales was, in 1907, 9·6 per 100,000 inhabitants; in London (registration district of London), 8·3. It will be interesting to compare the death-rates in other countries and towns with those of England and London. To save repetition it may be here stated that, except where otherwise indicated, the mortality given will be the death-rate from diabetes per 100,000 living. Probably the statistics are everywhere below the actual mortality, because cases are occasionally not diagnosed, or are registered as phthisis, gangrene, carbuncle, etc., when these affections have been terminal complications, and the primary disease has been diabetes.

The registration of deaths and medical diagnosis are probably as accurate in England as in other countries, and wherever the death-rate from diabetes is above that of England it may usually be fairly concluded that diabetes is more prevalent in that country or town; and sometimes much more common than is indicated by the death-rate. But if the death-rate of any foreign country or town is less than that in England, we cannot always conclude that the disease is less prevalent. In certain countries only very great differences are of any real value. There is one other point of practical importance—it may be accepted when death is certified as due to diabetes, that the diagnosis is usually correct.

Amongst the various *counties* of England and Wales, the mortality from diabetes mellitus was greatest in Oxfordshire in the year 1901 (with the exception of Huntingdonshire and Rutlandshire where the figures were too small for reliable statistics). The year 1901 was the census year, and in the report of the registrar general for that year the population of each county is given. In Oxfordshire the deaths from diabetes were 15·5 per 100,000 inhabitants; the mortality from diabetes for the whole of England and Wales was, in 1901, 9·1 per 100,000; in London it was 8·2.

Whatever may be the explanation, it appears probable from these statistics, and from subsequent statistics, that the mortality from diabetes mellitus is a little higher in Oxfordshire than for the country generally.

In *Scotland* and in *Ireland* the mortality from diabetes is less than in England. But in Edinburgh in 1907 it was 12·7 per 100,000—higher than in London; in 1906 it was 11·4. In Dublin it appears to be considerably lower than in London. In England and Wales the mortality from the disease has been greater amongst males than females for many years, but, as already stated, the mortality amongst females has recently increased more rapidly than amongst males; so that now the difference is much less than formerly. But in Scotland the number of deaths from diabetes amongst females in 1906 was greater than amongst males, the figures being 156 males, 192 females (mortality, males 6·7; females 7·9 per 100,000 inhabitants).

Statistics for the Shetland and Orkney Islands and the Channel Islands (Jersey and Guernsey) indicate that probably the mortality from diabetes mellitus is not greater than in England. From figures kindly supplied by my friend, Dr. R. Marshall (M.O.H., Douglas), it appears that the mortality from diabetes has increased decidedly in the last ten years in the Isle of Man, and that it is probably now higher than in Engalnd. (I have estimated it as equal to 12·5 per 100,000 for the last ten years.)

British Possessions in the Mediterranean Sea.

Gibraltar. The death-rate from diabetes, based on the average of the figures for the last six years, appears to be about 2·0 per 10,000 (corresponding to 20 per 100,000), which is much higher than in England, unless there has been a great increase in the population of Gibraltar. The civil population are said to be descendants of Genoese settlers.

Malta and Gozo. The frequency of diabetes in Malta has long been well known, but probably few are aware that the mortality from diabetes has reached 37·8 per 100,000 inhabitants in Malta. Dr. R. P. Samut has very kindly sent me the mortality from diabetes mellitus in Malta and Gozo for twelve years, which is shown in the following table :—

	Per 100,000 inhabitants.		Per 100,000 inhabitants.
1896	23·3	1902–3	34·9
1897	24·2	1903–4	28·1
1898	34·7	1904–5	36·5
1899	23·7	1905–6	33·8
1900	44·8	1906–7	37·8
1901	38·1	1907–8	33·1

I have also to thank Dr. C. Mattei for statistics. The density of population in these Islands is great—1,780 per square mile (In England, 1901, 558 per square mile).

The cause of this very high mortality is worthy of the careful consideration of the medical men of Malta. Is it due to the free consumption of cheap sweet wines, or to the mode of life, or race tendency? Dr. R. P. Samut, in an interesting letter, points out that the disease often occurs in many individuals of the same family, that "diabetes conjugalis" is observed in certain instances, and that obesity, and abundance of uric acid in the urine are common. Many of the inhabitants take very little physical exercise owing to the warm and, in summer, relaxing climate of Malta.

Cyprus. Though this island has a population larger than that of Malta, no deaths from diabetes were recorded during the years 1906, 1907 and 1908; but cases of the disease (9, 15 and 18 respectively) were treated by medical men in Cyprus during the years mentioned.

CONTINENTAL EUROPE.

France. In Paris the mortality from diabetes is very high, 17·6 per 100,000 inhabitants in 1906; thus more than double that of London, and nearly double that of England and Wales.

Statistics show a marked increase in the Paris death-rate from diabetes in recent years. In the periods 1872 to 1875 it was 3 per 100,000 inhabitants; in 1881–5, 8; in 1886, 11; in 1890, 13; in 1893, 14; in 1906, 17·6.

It has been stated that diabetes is more common in Normandy than in other parts of France, but I have not been able to obtain statistics demonstrating this. The mortality from diabetes in several of the towns of Normandy is much lower than that of Paris. The mortality from diabetes in Bordeaux (the centre of the wine industry) is particularly high, being 22·2 in 1906, and 25·8 per 100,000 in 1907—thus much higher than Paris.

Germany. In Berlin the increase of the death-rate from diabetes has recently been very marked. Prinzing gives the following statistics: 1871—1880 mortality from diabetes in Berlin 2·4 per 100,000 inhabitants; 1881—1890, 4·3; from 1891—1900, 8·2. The last Jahrbuch shows that in 1905 it was 16, and in 1906 20 per 100,000. It is thus higher than that of any other European capital.

Frankfurt-on-Main has also a very high mortality from diabetes: in 1908 it was 17·32; in 1907, 16·57; and in 1906, 23·82. The large proportion of Jews amongst the inhabitants of Frankfurt may be the cause of this high mortality. Munich has a diabetes mortality of 15.

Prof. Seegen, writing in 1893, stated that a very large proportion of his diabetic patients in Carlsbad came from Frankfurt-on-Main and from Thüringen. His patients from Frankfurt were chiefly Jews; those from Thüringen mostly poor hard-working people.

It has often been stated that in Thüringen and in Württemberg diabetes occurs more frequently than in other parts of Germany. I have not been able to obtain statistics in favour of this statement. But the number of cases treated in the Prussian hospitals has increased 21 per cent. during the last three years, in comparison with the three years previously; whilst in the Thüringen hospitals the increase has been 136 per cent. (Letter from the President of the K. Gesundheitsamt.) The following are the statistics for four towns in Thüringen: Diabetes mortality in Erfurt, 15·5 per 100,000; in Coburg, 2·6 in 10,000 (=26 per 100,000); in Eisenach, 1·63 per 10,000 (=16·3 per 100,000); in Weimar, 1·3 per 10,000 (=13 per 100,000).

The diabetes mortality in Weimar for the last seven years was equal to 13 per 100,000. Hence the disease appears to be more prevalent in Thüringen than in England.

In *Denmark* the mortality from the disease has greatly increased.[4, 5] From 1880 to 1884 it was 7 per 100,000 in Copenhagen; from 1885 to 1889, 8; from 1890 to 1894, 8; in 1906, 15·3; in 1907, 15·8. A similar increase has been recorded in the other towns of Denmark.

Hungary. In Budapest the mortality from diabetes has increased rapidly and is now double that of ten years ago. It is interesting to note that 53·6 per cent. of the deaths from diabetes in this city, in 1906, were amongst Jews; whilst only 23·5 per cent. of the inhabitants were Jews.

In *Italy* the mortality from diabetes has increased from 1·7 in 1887, to 3·5 in 1897, and 4·5 in 1907.

In *Turkey* diabetes is met with not infrequently; but Dr. Clemow (Physician, H.M. Embassy, Constantinople) is unable to satisfy himself that it is of more common occurrence there than elsewhere in Europe (1909).

Statistics for other European towns and countries are given in the table at the end of this article and do not require separate mention.

In Funchal, Island of Madeira, the mortality is equal to about 12 per 100,000, but the Medical Officer of Health informs me that this does not include diabetics who have died of intercurrent diseases, and that in Funchal diabetes is a very common affection.

ASIA.

China. It was formerly often stated that diabetes was practically unknown in China. But in recent years there is clear evidence that diabetes does occur amongst the Chinese, in China, Formosa, Hongkong, India, and the United States. There can be no doubt, however, that it is very rare amongst the poorer Chinese, who adhere to their native modes of life and diet. This is the decided opinion of many medical men who have had much experience of practice amongst the Chinese (Sir P. Manson,[6] J. P. Maxwell[7] and many others).

J. Cantlie,[6] however, states that diabetes is common amongst Chinese who indulge in European food, and especially when sweet wines are taken; and W. C. Brown[6] considers that it is "very common amongst the upper classes of Chinese."

Hongkong is a British Colony in which the inhabitants are chiefly Chinese. The total estimated population for 1907 was 329,357, of whom 310,580 were Chinese. In five years there were only two deaths from diabetes (both Chinamen)—a mortality of less than 0·15 per 100,000. Allowing that many cases of the disease amongst the Chinese inhabitants of Hongkong may not be diagnosed, still the statistics of this colony furnish some evidence that the diet of the Chinaman, which is chiefly rice and farinaceous food, does not tend to increase the frequency of diabetes.

In *Japan* diabetes mellitus occurs, and Dr. Tsuboi[8] concludes, from hospital statistics, that in certain districts it is as frequent as in Europe. He states that the disease is mostly of a mild form, and he has observed it more frequently where the inhabitants live on a diet rich in albumen and fat, than where the diet consists chiefly of rice and vegetables. In one district amongst 22,390 hospital in-patients there were 58 cases of diabetes; in another district amongst 15,654 in-patients 8 were diabetic. At the pathological department of the Tokyo University, amongst 3,466 post-mortem examinations 11 were on diabetic patients—1 to 315.

Diabetes occurs in the *Philippine Islands,* both amongst the Filipinos and Europeans; but from the statistics of Manila (supplied by Dr. C. Wilbur) it appears that the mortality is not greater in that city than in England, probably less.

Rasch[9] and Below state that diabetes mellitus is very frequently met with in *Siam*. The disease is usually of a milder form than in Europe. The diet of the Siamese consists chiefly of rice and fish. A sign of the altered character of the urine is well known to the Siamese—ants collect in enormous numbers on the drops of diabetic urine which fall on the floor or ground, whilst they are little attracted to normal urine.

Strait Settlements: Singapore, Penang, Wellesley, Malacca, Labuan (Borneo). The reports of the hospitals at these colonies show that though 29,091 cases were treated in 1907 there was only one case of diabetes (at Penang). The total population is estimated at 628,082 (Malays 216,459; Chinese 323,182).

Statistics from Batavia, *Java,* show that in 1908 the diabetes mortality was equal to 125·3 per 100,000 amongst the European inhabitants, and in a number of other towns in Java 48·3 per 100,000; but as this was the first year in which statistics were published, possibly there may be some fallacy in these remarkable figures.

India. Diabetes is very common in certain parts of India, especially in Bengal. In the Punjab it is comparatively rare. The experience of numerous medical men, who have practised long in India, clearly indicates the frequency of the disease in Bengal. But definite statistics are difficult to obtain. Those for Calcutta give a mortality from diabetes equal to 9·2 per 100,000 inhabitants; but it is probable that the disease is much more common than is indicated by this death-rate, because so many cases are of a very mild form, of long duration, and death occurs from some other cause (intercurrent disease).

Even the limited statistics of the diabetes in the Indian Army are in favour of the latter statement. Thus during the three years 1905—1907 in the European Army of India, of about 69,000 to 70,000 men, there were 11 cases of diabetes—death occurring in 4. Whilst in the Native Army (123,000 to 127,000 men) there were 29 cases with only 3 deaths.

In India it is the Hindus who suffer most. In 1907 in Calcutta there were 92 deaths registered as due to diabetes mellitus; of these, 68 were Hindus, 15 Mahomedans, 4 mixed, 4 non-Asiatics, 1 other classes. The census of 1901 showed that the proportion of the various sections of the inhabitants of Calcutta was as follows: Hindus 551,462; Mahomedans 249,939; Christians 37,925; Buddhists 2,903; other classes 5,567. The Mahomedans appear to suffer now more frequently than some years ago. Thus for the period 1886—1890 Sen states that there were 203 deaths from diabetes in Calcutta amongst the Hindus, and only 3 amongst the Mahomedans, and 5 amongst the non-Asiatics. (The population for 1891 was as follows: Hindus 428,762; Mahomedans 189,226; Christians 26,406; other religions 5,007.)

According to C. L. Bose,[6] in Bengal the proportion of Hindus to Mahomedan inhabitants is 2 to 1, but the proportion of Hindu diabetic patients to Mahomedan diabetics 8 to 1.

Amongst 325 cases 76·92 per cent. were Hindus, 8 per cent. Mahomedans, and 5·54 Europeans.

The deaths from diabetes per 100,000 *deaths* are less than formerly in Calcutta. Sen[11] estimated that the proportion was 379 in 1890; in 1907 it was 288.

The Bengali gentlemen are said to be specially liable to the disease. The town inhabitants suffer most. The disease is not due simply to farinaceous food, since agriculturists in the country, who live chiefly on starchy food, seldom suffer. But I do not think the importance of sweet food has been satisfactorily investigated. The disease has been attributed by physicians in India to excessive mental work, mental strain and anxiety, sedentary mode of life, heavy meals containing much starch, sugar and fat. Some observers attach much importance to dyspepsia as a fore-runner of the disease (Sir R. H. Charles and others[6]).

In *Ceylon* diabetes is common. The educated higher classes of the natives suffer chiefly. It is rare amongst the poor and in hospital patients (Fernando[6]). It occurs chiefly in obese, overfed individuals. Sedentary life, mental over-strain in business or study, and excess of saccharhine and starchy food have been regarded as predisposing causes. So many careful observers have drawn attention to the frequency of the disease in Ceylon that it cannot be disputed; but the statistics showed a mortality of only 3·4 per 100,000 inhabitants in 1907. It is said, however, that the registration of deaths from this disease is very unsatisfactory in Ceylon, as there is a peculiar tendency to conceal the nature of the affection. Further, the disease is very often of a very mild form, which is kept in check by treatment. These facts probably explain the low mortality from the disease indicated by the statistics. The Singhalese, Tamils and other races appear to be almost equally affected.

According to Camail diabetes is very common, but of a mild form, in the *French possessions* in India.

Diabetes occurs in *Turkey in Asia*, the mortality in Smyrna being 8·5 per 100,000 inhabitants.

In *Caucasus, Siberia and Russian Central Asia* diabetes occurs, but I have not been able to obtain statistics as to its frequency.

At *Aden* it occurs, but appears to be rare.

AFRICA.

In *Egypt* Dr. Sandwith[6] considers that "diabetes is one of the common diseases among the Egyptians, who live chiefly on bread and vegetables . . . . and are very fond of sugar in all forms."

According to Dr. J. B. Christopherson[6] (Khartoum), "Glycosuria in the Egyptian *Sudan* is very rare."

In *Tunis* diabetes occurs very frequently. There are not yet definite statistics, but so many medical men who have practised in Tunis have been impressed with the frequency of the disease, that there can be no doubt of the accuracy of the statement. The director of the Bureau d'Hygiene of Tunis informs me that the disease is *extremely common* in Tunis. It is much more frequent amongst the Musulmans and Jews than in the Europeans. Obesity, often very great, is particularly common, especially amongst the Jewish women of Tunis.

In the *Orange River Colony,* owing to the recent decrease of the population, the statistics at present are not very reliable, but they are sufficient to indicate that diabetes is probably not more frequent than in England.

The *Transvaal.* In the Johannesburg municipality (in 1905–6) the diabetes mortality was equal to 8 per 100,000 inhabitants amongst the white population; no deaths were reported from the disease amongst the black population.

In Witwaters-rand, with the following population, 43,988 whites, 83,173 blacks, 47,595 Chinese, there were three deaths amongst the whites from diabetes (equal to a mortality of 7 per 100,000) during 1905–6; but there were no deaths from the disease amongst the blacks or Chinese, and no case of diabetes was recorded amongst the ailments for which the Chinese were treated.

In Pretoria the diabetes mortality was 3·67 in 1907–8 (white population only).

In *Natal* the mortality from diabetes amongst Europeans during the last five years was equal to 6 per 100,000, and in 1907–8 in Durban to 14 (but the figures were small on which the statistics were based).

In *Cape Colony* the statistics do not appear to indicate a mortality from the disease higher (or at least much higher) than that of England.

In *Lower Guinea*, according to Prof. H. Ziemann[6] (Cameroons), diabetes is extremely rare amongst the negroes whose diet consists chiefly of vegetables.

In *Sierra Leone* the hospital reports in 1907, referring to 1,956 in-patients and 50,206 out-patients, record 2 cases of diabetes amongst the latter; the population of the colony is estimated at 76,929; that of Freetown 37,280.

In *Mauritius* diabetes is not common. For 1907 the mortality was 5·6 per 100,000.

AMERICA.

The mortality from diabetes in the whole of *Canada* in 1901, the census year, was 6·8 (In England and Wales, for the same year, 9·1).

The death-rate from diabetes for *Toronto* (15·4) is higher than in *Montreal* (8) and still higher than in *Quebec* (4 to 7 in recent years); that of the Province of *Ontario* is higher than in the Province of *Quebec*.

In the other Provinces of Canada the statistics are less reliable, but they do not indicate that the mortality from the disease is higher than in England.

My friend, Dr. S. K. Hutton,[13] who practised for five years amongst the *Eskimos* at *Okak*, on the coast of *Labrador*, informs me that he did not meet with a single case of diabetes. Their diet is chiefly nitrogenous and fatty food, though other kinds are taken.

In the *United States*, in the registration area, the death-rate from diabetes has risen from 11·3 per 100,000 of the population in 1903 to 13·9 in 1907. In the "registration states" it reached 16·2 per 100,000 in California, 19·3 in Connecticut, 18·3 in Massachusetts and in New Hampshire, 16·9 in New York, 17 in Rhode Island, and 17·9 in Vermont. In the cities of California it was 21·2, in the rural districts of Connecticut 22, in the rural districts of Massachusetts 19·9.

In 1907 in four large cities of over 100,000 inhabitants the diabetes mortality was 20 or more per 100,000. These cities were

Worcester, Mass., 27·3; Syracuse, N.Y., 25·7; Bronxborough, New York, 25; Rochester, N.Y., 21·6. New York, Washington and Boston all had a diabetes mortality of over 17. In 1905 San Francisco had a diabetes mortality of 20.

There has been a great increase in the total diabetes mortality of the registration area of the United States, and of that for most of the large towns during the last twenty years.

The census returns for 1900 record 4,526 deaths from diabetes amongst the white population; 148 amongst the coloured race; but only two deaths amongst the Chinese and two amongst the Indians. Of the total population of 76,303,387, there were 66,990,788 white inhabitants; 8,840,388 negroes or coloured; 119,050 Chinese; 86,000 Japanese; and 266,760 Indians.

In *Honolulu* and the *Sandwich Islands* statistics do not indicate that diabetes occurs so frequently as in England.

As regards *Mexico* the records do not show a general high diabetes mortality, but in many districts the cause of death is not certified. In Vera Cruz it is remarkable that amongst 74 deaths certified as due to diabetes in the last report (1903), 38 (half) were under the age of twenty.

In British *Honduras* diabetes is very rare. There were no deaths from diabetes in Belize during 1906 and 1907.

The records for the British *West Indies* show that in Jamaica, St. Lucia, and St. Vincent it is probably less frequent than in England.

In *Cuba* the mortality from diabetes is 2·8; in Habana 4 per 100,000 inhabitants.

South America. The disease is very rare in *British Guiana* (statistics, and personal experience of Dr. W. F. Law during twenty-three years).

In *Buenos Aires* the diabetes mortality was 5·6 per 100,000. The mortality was greater in females. For 1907 the deaths from diabetes were 26 males, 38 females. Under the age of 40, deaths: 10 males and 5 females; over 40: males 16, females 33.

In Monte Video, *Uruguay*, in La Paz, *Bolivia*, and in Bogota, *Republic of Colombia*, the disease appears to be rare from the statistics published.

AUSTRALASIA.

In Australia the mortality from diabetes is greatest in the colony of *Victoria,* where it has reached 11 per 100,000 living; and is thus higher than in England and Wales. There has been a very rapid increase in the mortality from diabetes in Victoria during the last six years—from 3·8 to 11 per 100,000 (the figures for these years being 3·8, 5·8, 8·2, 8·2, 8·5 and 11·0). The higher mortality from diabetes in later years cannot be wholly explained by the sex and age constitution of the population (E. T. Drake, Victorian Year Book, 1907–8). In Melbourne the diabetes mortality for 1907 was 11 per 100,000.

In *New South Wales* the mortality is much less, 5·8 per 100,000, and the number of deaths (90) during 1906 in this colony was below the average (121) for the five years 1900—1904.

There is no mention of diabetes in the hospital reports for *Papua* and the *Fiji Islands.*

My friend, Dr. Farrington, who has practised for seven years in the Fiji Islands, tells me that he has not met with a single case of diabetes. The diet of the people is chiefly farinaceous food (yams).

In *New Zealand,* though the male population is greater than the female, the number of deaths from diabetes amongst females is greater than amongst males—the average for the last six years being 36 males to 47 females yearly. In 1907 the mortality from diabetes amongst females was *double* that amongst males (males 29, females 58).

MORTALITY FROM DIABETES MELLITUS IN VARIOUS COUNTRIES AND TOWNS.*

Country or Town	Mortality from Diabetes per 100,000 living	Country or Town	Mortality from Diabetes per 100,000 living
England and Wales	9·6	British possessions in the Mediterranean Sea :	
London (Registration London).	8·3	Gibraltar (Equal to)	20.0
Manchester	6·6	Malta and Gozo	37·8
Scotland (1906)	7·3	Cyprus	0
Edinburgh	12·7	Continental Europe :	
Glasgow	7·1	Norway	6·7
Aberdeen	5·7	Kristiania	12·0
Ireland	7·2	Sweden :	
Dublin (10 years)	3 to 4	Stockholm	12·5

* The diabetes mortality in each case is for 1907 unless otherwise indicated.

Country or Town	Mortality from Diabetes per 100,000 living
Finland :	
Helsingfors	5·0
Denmark :	
Copenhagen	15·8
Provincial Towns	13·0
Holland	10·5
Amsterdam	11·8
Belgium :	
Brussels	14·1
France :	
Paris	17·6
Havre	9·8
Rouen	8·4
Bordeaux	25·8
Switzerland	6·8
Canton Berne	5·1
Germany :	
Berlin	20·0
Hamburg	8·5
Frankfurt (a. Main)	16·57
Bavaria :	
Munich	15·0
Württemberg :	
Stuttgart	14·9
Saxony :	
Dresden	11·3
Erfurt	15·5
Baden	7·1
Karlsruhe	12·9
Austria Hungary :	
Buda Pest	12·0
Prague	13·27
Innsbruck	6·0
Poland :	
Krakau	13·0
Warsaw	8·1
Italy	4·5
Rome (city)	13·0
Tuscany	5·6
Naples	3·8
Sicily	5·2
Sardinia	4·5
Spain :	
Madrid	10·5
Servia :	
Belgrade	6·4
Greece :	
Athens	11·0
Madeira :	
Funchal (equal to)	12·4
Asia :	
Hongkong	0·15
Calcutta	9·2
Smyrna	8·5
Mauritius	5·6
North America :	
Canada (1901 census year)	6·8
Toronto (1905)	15·4
Montreal (1906)	8·0
Province of Ontario (1905)	9·9
Province of Quebec (1906)	5·8
United States (Registration Area)	13·9
New York City	17·4
Philadelphia	12·3
Chicago	10·7
New Orleans	7·8
Washington	17·3
Baltimore	15·0
Boston	17·9
Worcester (Mass)	27·3
Syracuse (N.Y.)	25·7
Rochester (N.Y.)	21.6
West Indies :	
Jamaica	1·8
Cuba	2·8
Habana	4.0
South America :	
Argentine Republic :	
Buenos Aires	5·6
Uruguay :	
Monte Video	6·0
Australasia :	
Australia :	
Victoria	11·0
Melbourne	11·0
New South Wales (1906)	5·8
Sydney	9·8
Queensland	7·0
South Australia	11·0
West Australia (1905)	5·0
Tasmania (1906)	6·0
New Zealand	9·0

Whilst it is probable that diabetes may occur in all climates and races, statistics and experience show that the frequency of the disease varies considerably in different parts of the world.

Though the exact cause or causes of the disease are still obscure, in England there are certain antecedents which at least act as exciting causes. These are: mental anxiety, overstrain, shock; excess of food or beverages containing much sugar; excess of alcoholic beverages; occasionally injuries, pregnancy and acute illness. A "family history" of the disease is obtained in 22 per cent. of the cases. In Manchester I have obtained a history of great mental anxiety, shock, or overstrain in 35 per cent. of my cases, and a history of the consumption of excessive quantities of food, or of liquids containing much sugar (herb beer, etc.) in 37 per cent.

Race. It has been clearly demonstrated that *Jews* suffer from the disease much more than Christians in European countries. From the excellent statistical publications of Buda-pest I have been able to estimate the much greater mortality from diabetes amongst the Jews in that city.

		Total No. of deaths.	Deaths from Diabetes.	Proportion of Deaths from Diabetes per 1000 deaths.
In 1905.	Jews	2,623	46	17·5
,, ,,	Other faiths	13,471	34	2·5
In 1906.	Jews	2,500	51	20·4
,, ,,	Other faiths	12,621	44	3·4

Thus in 1905 in Buda-pest the proportion (per 1,000 deaths) was, seven deaths from diabetes amongst the Jews for every one death from this disease amongst the inhabitants of other faiths; in 1906 the proportion was, six deaths from diabetes amongst the Jews to every one death from this disease amongst those of other faiths. Stated in another form, there was one death from diabetes in every 57 deaths amongst the Jews in 1905; and one in 49 in 1906, while amongst the rest of the inhabitants of Buda-pest there was one death from diabetes in every 396 deaths in 1905, and one in 286 in 1906.

In Frankfurt (am Main) Wallach[12] has shown that the proportion of deaths from diabetes to deaths from other causes was six times greater amongst the Jews than amongst the rest of the inhabitants of that town. The mortality from diabetes per 1,000 inhabitants was also much greater at all ages amongst the Jews than amongst the Christians in Frankfurt.

It is chiefly, but not exclusively, the Jews who are wealthy or in fairly good circumstances, and those who are stout or well nourished who suffer. For a long period the disease is usually, but not always, of a mild form.

Negroes suffer less frequently than the white races. It was formerly stated that they very rarely suffered from the disease. To what extent they formerly suffered in civilised lands, and to what extent they now suffer from the disease in uncivilised Africa, cannot be demonstrated; but there can be no doubt that, at the present time, negroes living in civilised countries, under similar conditions to white inhabitants, not infrequently become diabetic; though it appears that the disease is decidedly rarer amongst negroes than amongst the white inhabitants of such countries.

Futcher has shown that in Baltimore one out of every five of the medical patients admitted into the Johns Hopkins Hospital was a coloured patient; and one out of every ten cases of diabetes was a coloured patient. In other words, in Baltimore, the white population is only twice more liable to this disease than the coloured. Statistics for 1907 show a death-rate from diabetes of 16·3 per 100,000 for the white inhabitants of Baltimore and 8 for the coloured. In New Orleans the diabetes mortality of the white population was 9·5, of the coloured 3·5. In the state of Maryland the diabetes mortality of the white population was 12·6, of the coloured 4·7.

As already stated, the experience of many physicians, who have practised in China, clearly indicates that the disease is rare amongst the *Chinese* who adhere to their native diet. The statistics already given for Hong Kong, the United States and the Transvaal, though not free from objections, tend to show the rarity of the disease amongst the Chinese.

The Hindus, the natives of Ceylon, and the Maltese are particularly liable to suffer. Probably the Eskimos seldom suffer.[13]

Diet. In the normal condition glycosuria cannot be produced by starchy food, however great the amount. But in healthy individuals, if a very large quantity of sugar is taken, a trace of sugar will appear in the urine for a short time (alimentary glycosuria). The power of sugar destruction is thus limited in healthy persons. Experience and statistics show conclusively that a farinaceous diet does not cause diabetes (China and other countries). Though it cannot be said that there is conclusive evidence that excess of sweet food causes diabetes, the fact just mentioned respecting alimentary glycosuria, and the frequency of a history of excessive consumption of sweet food and drinks (jams, sweets, chocolate, sugar, herb beer and other drinks containing sugar, etc.), before the onset of diabetes, as well as the injurious influence of sugar in diminishing the sugar-destroying power of the system after diabetes has developed, make it probable that excess of sugar (in food or liquids) hastens the onset of diabetes. Though some additional factor may be necessary—weakened power of sugar destruction or other defect—it appears probable that many individuals would not develop the disease, or would not develop it until a later period of life, if excess of sugar (in food or liquids) had not been taken. Whether diabetes is more prevalent in those countries where large quantities of sweet foods and sweet drinks are taken (a sharp distinction being drawn between starchy and saccharine foods) is worthy of further investigation.

Sex. In most foreign countries and towns the diabetes mortality is greater amongst males, as in England; but in some parts it is greater amongst females, as in Habana, Buenos Aires, Scotland, and New Zealand.

CONCLUSIONS.

Statistics show that the mortality from diabetes is rapidly increasing in England, and in many foreign countries and towns, whilst in others there is little or no increase..

In certain parts of the world the mortality from diabetes is much greater than in England and London: Malta, many of the large towns of the United States (Worcester, Syracuse, Rochester, New York, Boston, Washington), Bordeaux (France), Berlin, Paris, Frankfurt (am Main). Also experience indicates that it is specially common in Bengal, Ceylon, Siam and Tunis.

Certain races are especially liable to suffer: Jews, Hindus and Maltese; whilst the Chinese who adhere to their native diet and modes of life rarely suffer.

A consideration of the statistics given in this article suggests several questions. Is the high mortality from diabetes in certain parts of the world, and the increased mortality from this disease in many parts, due to the great mental strain of modern life? Is it due to excessive or increased consumption of sugar and sweet food; or of wines, alcoholic or temperance beers, herb beers and drinks containing much sugar? Or can the greater mortality in some towns and countries be due to the use of beet-root sugar in place of cane sugar? The manufacture of sugar from beet-root has increased enormously during recent years and in many parts it has largely replaced the old cane sugar. Can it be that beet-root sugar, or certain specimens of it have some injurious influence? These are questions which cannot be answered at present, but they appear to be worthy of careful consideration. There are many British medical men, practising in foreign lands and distant colonies, who have excellent opportunities of collecting information regarding the geographical distribution and etiology of diabetes; and if this article should lead to the publication of any such information, throwing light on the cause of the disease, it will not have been written in vain.

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